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Soil
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Soil & Water Conservation News

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By July 30, this field of grain sorghum in Saline County, Kans., had "burned up" with the heat and drought. Stubble of the previous crop was burned so there was no surface mulch to hold moisture.

Kansas Fights the Drought

by Fred Trump

Many Great Plains farmers and ranchers are incurring huge crop and meat production losses as a result of this year's drought and intense heat. Some farmers and ranchers have avoided disaster because they use soil and water conservation practices such as conservation tillage and because they have installed livestock watering facilities, ponds, and planned grazing systems.

Some Kansas farmers using conservation tillage retained enough soil moisture in their fields to prevent grain sorghum crops from "burning up." The residue left on the soil surface helps the soil retain moisture

and protects the soil from blowing.

A Lane County conservation tillage farmer says that in a dry summer 2 years ago he had about the only grain sorghum crop that survived in the area because his stubble-covered fields had retained more soil moisture than bare fields.

"This year fallow wheat fields with an adequate residue cover in Finney County had soil moisture to a depth of about 8 inches in July," reports Elmer Richmeier, Soil Conservation Service district conservationist at Garden City. "On fields where wheat residue was poor, it was dry to a depth of a foot or more."

Gary Antenen is a good example of a number of Ness County farmers whose grain sorghum crops were looking good this summer, despite the drought, because of moisture-

Continued on next page.

Assessing Volcano's Effects

by S. H. "Archie" Fuchs

The Soil Conservation Service, along with other Federal and State agencies, continues to assess the effects of the volcanic eruptions of Mount Saint Helens in southwestern Washington. The supplemental appropriation of \$20 million in Emergency Watershed Protection and \$3 million of Conservation Operations funds is being used to restore stream channels, reestablish vegetation on thousands of critically eroding areas, and to advise farmers or ranchers how to handle the tonnage of ash that fell on their lands.

Ashfall damage to prime farmland, as of mid-August, appears to have been minimal. Prime farmland being used as cropland apparently can be

returned to its original productivity simply by incorporating the ash into the soil. While still on the soil surface, the ash causes increased runoff and erosion; but once it is mixed into the plow layer, its harmful effects are fairly well gone. And in fact minerals in the ash may improve soil productivity.

Many crops sustained some damage. Following the May 18 ashfall, lentils and peas were nearly buried in some fields. Those a little farther along in their growth were able to emerge from the ash and produced high yields. Wheat and barley were even less damaged, and combines throughout much of Washington reaped near record yields. Smooth fruits such as cherries and apples could be cleaned for marketing, but soft fruits like strawberries and raspberries could not, and many growers took a lower price than they had expected.

The first cutting of alfalfa in some locations was nearly buried by the ashfall. Many farmers were able to salvage part of that crop—and second and third cuttings are clean and bright. But machinery has suffered from the abrasive ash—particularly hay mowers and balers. One grower reported his sickle bar was almost worn out after mowing only 30 acres of hay.

Pastures and range were also damaged by the ash which may be harmful when ingested by grazing animals. Rangeland, much of which cannot be plowed without causing severe damage to the natural vegetation, is also experiencing heavy runoff because of the surface sealing effect of the ash. Range conservationists are studying the best ways to restore range without losing several years of production.

Heavy tree losses occurred near

Continued on next page.

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Kansas Fights the Drought, cont.

holding practices such as terraces, planting on the contour, and stubble mulching. Bill Sorensen, SCS district conservationist at Ness City, says the biggest benefit of these practices will come at wheat planting time, when nonconservation farmers may find themselves out of soil moisture.

"Reno County farmers learned a bitter lesson last fall when so much clean-tilled land was severely eroded by heavy late October rains," reports Doug Uehling, SCS district conservationist at Hutchinson. "As a result, farmers have been doing a lot more chiseling of wheat stubble instead of plowing this summer. Because of this there has been considerably more soil moisture retained than there would have been with conventional plowing. Many farmers are considering leaving some of their land fallow to conserve moisture, if substantial rains don't come." That means a shift from continuous wheat to a wheat-fallow rotation.

Plenty of stubble left on the soil surface for the next crop is definitely cutting down on wind erosion and the loss of soil moisture for Kansas farm-

ers and staving off a return of the Dust Bowl.

Good range management is also a key weapon against wind erosion. A Ness County farmer, Leroy Fritzler, has midgrass rangeland that was in good condition this summer thanks to a planned grazing system. He has four pastures and grazes each one for 3 months. But poorly managed range in Ness County has nearly all "burned up" and cannot provide adequate forage for livestock.

Grass was also in good condition over the whole Fleming ranch in Gove County, according to manager Ron Lewis. Three years ago, Lewis had a water pipeline system installed to supply 11 stockwater tanks on the 8,300-acre ranch, with assistance through the Great Plains Conservation Program. Formerly, nearly all of the grazing had been done near the Smoky Hill River, and that part of the ranch would have been badly overgrazed this summer without the livestock watering system.

Other conservation practices helping Kansas farmers salvage their farming operations are drip irrigation systems for windbreaks, terraces,

and stockwater ponds. "Parts of the State may get a lot of rain or very little rain in the next few months," says John Tippie, SCS State Conservationist. "But in either case, soil and water conservation practices will benefit the land by conserving moisture for future use and protecting the soil from erosion."

Fred Trump,

public information officer, SCS, Salina, Kans.

Drought Prompts Emergency Assistance

By the end of August, 50 counties in four States—Montana, North Dakota, South Dakota, and Texas—had been offered assistance under the U.S. Department of Agriculture's emergency conservation program to help repair damage caused by severe drought conditions.

The funds will be used to cost share with farmers measures such as laying pipelines, developing springs or seeps, cleaning out or deepening wells, and building tanks or troughs above ground.

Assessing Volcano's Effects, cont.

the mountain where an estimated 1.6 billion board feet of timber (enough to build 160,000 houses) was blasted to the ground by the force of the exploding mountain on May 18. A sharp line of demarcation between total devastation and growing timber can be seen around the perimeter of the 150-square-mile blast area. There is no permanent adverse effect where ashfall was 2 inches or less. The deeper ash deposits are expected to be more difficult to reforest than the shallower areas, and forest understory vegetation will be slower to

poke up through the deeper deposits of ash.

Fish and wildlife suffered tremendous losses. The Toutle and Cowlitz Rivers are now almost completely devoid of trout and salmon. Not only were hatcheries wiped out by the mudflows, but natural fish populations were also suffocated in the muddy rivers.

Biologists suspect that fish now growing in the ocean face an uncertain future as they commence their migrating runs up these rivers. The rivers are almost certain to be too muddy for them to live, and they also

have had most of their natural spawning habitat destroyed.

The single-grained volcanic ash was quite bulky as it fell; and due to entrapped gas bubbles within the particles, some were lighter than water and would float. Rains shortly after the May 18 ashfall consolidated the ash to approximately 50 percent of the original volume. A very thin surface crust and other physical characteristics of the material have greatly increased runoff and erosion potential.

Testing is currently underway to learn how best to overcome this

Bob Bergland
Secretary of Agriculture

Norman A. Berg, Chief
Soil Conservation Service

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Comments:

from the SCS Chief

In July, Secretary of Agriculture Bob Bergland issued a comprehensive wildlife policy (Secretary's Memorandum No. 2019). One of the specific actions identified as part of the USDA goal is to ensure that appropriate USDA agencies provide research and technical, educational, and financial assistance that will encourage private and non-Federal land users to protect and improve fish and wildlife habitat.

The Soil Conservation Service, as the principal USDA agency helping private land users with wildlife conservation, has always been committed to improving or establishing wildlife habitat as part of a comprehensive soil and water conservation program. The agency's view of wildlife conservation certainly matches the Secretary's when he says, "The approximately 3,000 species of birds, mammals, fish, reptiles, and amphibians living within America's boundaries represent a valuable resource which is worthy of our best management and protection efforts."

The Secretary's memorandum calls for a coordinating committee made up of representatives from 10 USDA agencies, including SCS, to help carry out the wildlife policy and assess the need for changes in agency programs. In addition, the memorandum calls for the formation of a fish and wildlife operating committee in each State, and SCS will also participate in these committees.

In serving on fish and wildlife committees, SCS employees have much to contribute because of the agency's longstanding experience and technical expertise in incorporating wildlife conservation into all its activities. We not only can contribute much to carrying out the policy, but we also have much to gain in working with other USDA, Federal, State, and local agencies and private organizations in meeting wildlife goals.

As we implement this policy, we will fully consider other USDA and SCS missions, resources, and services.



runoff problem. Two rain simulators have been put to use, one at USDA's Science and Education Administration-Agricultural Research (SEA-AR) experiment station in Pullman, Wash., and one near Saint John, Wash. SEA's simulator is experimenting with ash amounts of 20, 40, 80, and 120 tons per acre. The field site near Saint John is located where about 80 tons of ash fell on each acre, or about 13/16 of an inch of settled ash. At both sites scientists are learning how to incorporate ashfall into the soil without risking more than average erosion during the

coming winter and spring when most of the precipitation occurs in this part of the Palouse.

Soil scientists have identified a potential problem. The ash contains soluble salt which, if washed off the slopes, accumulates in flatter areas at the bottom of a slope. They feel that in these locations, less salt tolerant crops like lentils and peas might be somewhat affected. However 4 inches of rain or irrigation water should eliminate the hazard. Little by little hard data on the long-term effects of this disaster are being evaluated and recommendations are

being developed. Many SCS conservationists believe most of the hazards can be overcome.

S. H. "Archie" Fuchs,
head, Conservation Technology Staff, West
Technical Service Center, SCS, Portland, Oreg.

Nongame Wildlife Is Watchable Wildlife

For many years, the funds for wildlife management in Oregon have come entirely from hunters through licenses, tags, and taxes on sporting equipment. Because of this, most of the habitat improvement has been directed toward game species.

Although a great many nongame species have benefited from this habitat improvement, little has been done directly for nongame species.

To remedy this situation, the Oregon Department of Fish and Wildlife recently launched a program to benefit the nonhunted species of wildlife in the State and to provide more opportunities for the public to view and learn about them.

Through the Watchable Wildlife Program, a special fund has been set up to receive contributions from the general public. The goal of the program is to let all interested persons—hunters, nonhunters, and even antihunters—help in developing

nongame habitat and in providing educational and information materials.

Some of the projects that have been designed include:

- Northern Willamette Valley—Construction of trails through habitat planted to attract a variety of birds, and a viewing and interpretive center on land owned by the Department on Sauvie Island;
- Southeastern Oregon—Development of water holes and cisterns for bird and small animal use and creation of nearby viewing stations;
- Northeastern Oregon—Publication of bird and wildlife lists, self-guiding trail directions, and necessary signs on existing trails in Ladd Marsh and Sumpter Valley area;
- Southern Willamette Valley—Construction of osprey nesting structures at Fern Ridge Reservoir;
- Central Oregon—Development of trails and guides for viewing on the National Grasslands at Rim Rock Springs.

In another effort to protect and pre-

serve nongame species of wildlife and wildlife habitats, the Oregon Legislature passed a bill to give State income taxpayers an opportunity to contribute to a special Nongame Wildlife Fund. On the 1979 income tax forms, there was a line where each taxpayer due to receive a refund was able to donate \$1, \$3, or \$5 of that refund to the Nongame Wildlife Fund.

On the following year's Federal and State taxes, the donation can be reported as a tax-exempt, charitable contribution.

The contributions will be used only for nongame wildlife habitat improvement, purchase of land for nongame wildlife habitat, or for research.

At the beginning of August, the amount contributed had already exceeded \$430,000 for 1979.

Information on both of these programs is available from the Oregon Department of Fish and Wildlife, P.O. Box 3503, Portland, Ore. 97205.

Other States have formally recognized the need to preserve and en-

Wildlife Habitat Means Reduced Land Assessment

A central Indiana farmer became the first participant in Indiana's new Classified Wildlife Habitat program. Warren Baird of Tipton County dedicated 15.7 of his 160 acres to wildlife habitat. He did this because of keen interest in wildlife and a new incentive that represents a milestone in wildlife management in Indiana.

The incentive requires local government to reduce land assessment to \$1 per acre for the area in the Classified Wildlife Habitat status. The Wildlife Classification Act of 1979 was patterned after the Classified Forest Program that has been work-

ing successfully in Indiana for several years.

Baird, a cooperator with the Tipton County Soil and Water Conservation District, first learned about the new law while working with the Soil Conservation Service in developing a conservation plan for his farm. He talked with a biologist from the Indiana Department of Natural Resources (IDNR), who looked over the site, then decided to work with the IDNR and SCS in developing a wildlife management plan for the area.

The area consists of 10 acres of woodland and 5.7 acres of grassland. Half of two different ponds are also contained on this area. The management plan includes plantings of conifer trees, autumn olive shrubs,

shrub dogwood, and 'Amur' honeysuckle for food and cover. Food plots of sorghum and sunflowers will be planted along fencelines for winter-time food. Crown vetch had been planted previously, on a recommendation from SCS, to control erosion around one of the ponds.

Last January, Warren Baird was awarded the first sign for the First State Classified Wildlife Area in Indiana. Baird's contribution to wildlife management is very important in Tipton County, Ind., which encompasses only 167,000 acres, most of it in cropland.

James D. Storer, was district conservationist, SCS, Tipton, Ind., and is now district conservationist in Rensselaer, Ind.

hance habitat for nongame species.

Colorado has an income tax checkoff provision similar to Oregon's in which taxpayers may contribute a portion (\$1, \$5, or \$10) of their State tax return to the nongame wildlife program. In 1978, the State collected \$350,000 from a little more than 90,000 contributors. In 1979, it collected \$501,000 and this year collected \$660,000.

Colorado also sells Wildlife Conservation Stamps for \$1, which provide money to save threatened and endangered species by developing their habitats and acquiring critical areas that are essential for their lives.

More information is available from the Colorado Department of Natural Resources, Division of Wildlife, Nongame Section, 6060 Broadway, Denver, Colo. 80216.

Washington has a program in which the income from the sale of personalized license plates is devoted to the support of a nongame wildlife management program.

The program stemmed from a ref-

erendum approved by voters and has been supplemented by matching funds from the U.S. Department of the Interior's Fish and Wildlife Service.

Under the program the State charges an initial fee of \$32 above the regular licensing fees and \$22 per year each year thereafter. During this past fiscal year, the State netted more than \$350,000, all of which will be applied to nongame wildlife programs.

For more information, contact the State Department of Game, 600 N. Capitol Way, Olympia, Wash. 98504.

The Pennsylvania Game Commission recently inaugurated a new program to raise funds to broaden and expand the agency's wildlife management activities.

Called Working Together for Wildlife, the program's thrust will be the enhancement of conditions for nonhunted wildlife.

Most Game Commission funds come from the sale of hunting licenses, and hunters feel that most

of their fees should be used for the management of game species. Even though nearly all wildlife species prosper under the many Game Commission programs developed for the benefit of game, many nonhunters have been reluctant to buy hunting licenses and have not had a readily available vehicle through which they can contribute to wildlife management. The Game Commission has launched the Working Together for Wildlife program so everyone can show active support for all of Pennsylvania's wild creatures.

Contributions can be used for such activities as acquiring and improving habitat, protecting endangered species, and enforcing the endangered species law.

Information on the program is available from the Pennsylvania Game Commission, 8000 Derry Street, Harrisburg, Pa. 17120.

(Adapted from an article in the March 1980 issue of *Pennsylvania Game News*.)

Acres for Wildlife

In Illinois, the "Acres for Wildlife" program was started in 1975 to improve wildlife habitat on marginal acres of private land. Any person owning or operating land in Illinois can qualify provided the parcel of land is at least 1 acre in size and is good wildlife habitat. The only restriction placed on the landowner is that the parcel must be left undisturbed for 1 year. This means that no mowing, burning, plowing, or grazing is permitted.

Once a parcel is enrolled in the program, the Illinois Department of Conservation will provide a sign to mark the tract and a sign at the landowner's residence identifying him or her as a participant in the program.

During conservation planning, Soil Conservation Service personnel look for areas with potential for wildlife habitat and will suggest that landowners contact a department biologist for information on the program. Landowners can obtain applications for the program at soil and water conservation district offices.

Adapted from an item in the Lake County Soil and Water Conservation District newsletter, Lake Zurich, Ill.

Wildlife in Danger

The Colorado Division of Wildlife has issued "Wildlife in Danger," a beautiful full-color booklet giving the status of Colorado's threatened or endangered birds, fish, and mammals.

Some of the animals described and illustrated are the river otter, lynx, peregrine falcon, bald eagle, greater sandhill and whooping cranes, and greenback cutthroat trout.

For more information on the booklet, write to the Colorado Department of Natural Resources, Division of Wildlife, 6060 Broadway, Denver, Colo. 80216.

New Home for Wildlife

There will be more wildlife habitat than ever around Santa Rosa, Calif., when the Central Sonoma Watershed Project is finished next year.

Last of the channel improvement work on the 50,000-acre project will unavoidably disturb about 7.3 acres of riparian corridor to protect homes and businesses from flooding. Losing their homes, at least temporarily, will be "songbirds, reptiles and amphibians, rats, and possibly a few deer," according to Soil Conservation Service District Conservationist Dwain Campbell. Subsequent landscaping, he adds, will replace some lost trees and shrubs.

To compensate for the immediate loss of wildlife habitat, project sponsors are improving 40 acres of a city-owned tract 4 or 5 miles away. Known as the Laguna de Santa Rosa, the area is used by the city to dispose

of treated sewage effluent. In the language of the National Environmental Protection Act (NEPA), this is known as "mitigation offsite in kind."

Planned measures include:

- Establishing a permanent ponded area, stocked with mosquito-eating fish;
- Planting willow and alder in some areas;
- Planting plugs of reed canarygrass in areas gridded by sprinklers, and broadcasting alkali bulrush seed for feed over shallow parts of the pond;
- Planting rare and endangered species as mutually determined by the Soil Conservation Service, California State Department of Fish and Game, and California Native Plant Society.

Wildlife to be benefited include owls, hawks, songbirds, waterfowl, shorebirds, cranes, bitterns, mammals, pheasant, quail, reptiles, and

amphibians. The area also will serve as a sump return site and water quality improvement area. It will be fenced as needed.

Concern over fish and wildlife habitat on the Central Sonoma project antedates the passage of NEPA by more than a decade. While it was floodwater and sediment damage to crops, homes, and business firms that led to authorization of the project in 1948, planners have from the start included wildlife mitigation measures in this pleasant northern California community.

Slopes of earthen dams, for example, have been planted to vetch, native grasses, and wildflowers to provide cover and food for wild creatures. Fish ladders have been provided where necessary to permit steelhead trout and salmon to swim upstream. There is even a ladder beneath the new Federal Building in

Wildlife Finds a Refuge

At the Catahoula National Wildlife Refuge, about 25 miles northeast of Alexandria, La., wildlife now finds plentiful food and cover, and waterfowl stop off during migration; but it took a lot of time and careful planning for this to happen.

As Steve Joyner, manager of the refuge, puts it, "I know of few Federal projects of this kind where so many agencies have worked together for a common good and saved taxpayers' money."

It all began in 1958 when the U.S. Department of the Interior's Fish and Wildlife Service (F&WS) bought the land under authority of the Migratory Bird Conservation Act.

"The land was in pretty bad condition when we acquired it," said Joyner. "The area had been overgrazed by cattle and hogs for years,

and most of the timberland had been heavily cut over. It was a challenge from the beginning. The refuge people before me knew that a lot of help was needed to make the refuge into the topnotch wildlife area that it is today."

In 1961, the refuge manager signed an agreement with the LaSalle Soil and Water Conservation District. Under the agreement, the Soil Conservation Service provided soils maps and elevation markers necessary for refuge employees to begin work developing the area.

Initial development was slow due to a lack of funds and people. In 1973, Bob Delaney, refuge manager before Joyner, began the first major project on the refuge. It included building an impoundment levee and replacing a water control structure. The dam backed water on 1,200 acres to be

managed as a feeding and nesting area for waterfowl. The project, designed by SCS, involved moving more than 186,000 cubic yards of soil.

The Jena unit of the Louisiana National Guard assisted in constructing the levee and installing a new water control structure. The National Guard donated equipment and 6,408 man-hours at an estimated cost of \$36,284 to construct the levee. National Guard Warrant Officer E. E. Jones, Jr., said, "Contracting this job would have cost more than \$200,000; but by working with the other agencies, we were able to save about \$164,000." The water control structure was constructed from scratch out of railroad tank cars by refuge personnel.

The National Guard, SCS, and F&WS also cooperated in designing and constructing an elevated access road and a dam near the mouth of

downtown Santa Rosa. Sponsors and several local organizations have planted hundreds of trees and shrubs along channel corridors. Along one creek, Boy Scouts planted reed canarygrass.

On the Austin Creek channel, it would have been necessary to remove many old oaks and eucalyptus to enlarge the channel adequately. Planners voted instead to dig a new channel alongside the old, retaining the trees and providing a point for the old channel to flow into the new.

Watershed impoundments provide habitat as well as recreation.

"When we began work on Central Sonoma," recalls Campbell, "we didn't call it 'mitigation'; as far as our design engineers were concerned, it was simply good planning."

Hubert W. Kelley, Jr.,
director, Information and Public Affairs,
SCS, Washington, D.C.



Improved channel in Central Sonoma Watershed Project has excellent growth of grasses, shrubs, and trees to provide food and cover for wildlife.

Cowpen Bayou to increase wood duck habitat on the refuge. Contracting these jobs would have cost about \$112,000, but they were completed for only about \$16,000.

Steve Joyner explains the strategic location of the refuge: "The refuge is in the middle of the Mississippi flyway and also attracts ducks from the Central flyway. In addition, nearby Catahoula Lake, a 26,000-acre public hunting area, is managed for waterfowl and gets intense hunting pressure. This pressure drives waterfowl to the refuge."

Not only has waterfowl habitat been improved on the refuge, but also habitat for the endangered alligator, the American bald eagle, and other reptiles and amphibians.

Another feature at the refuge is a nature trail. "It's about a mile long," explained Joyner, "and people can

walk into the wooded area to see what a bottomland hardwood forest looks like. In a few years, I don't think we will have much hardwood left in these parts. We also have an observation tower for people to climb on and look out over the waterfowl impoundment."

Although there is no hunting of waterfowl at the refuge, there is limited deer and squirrel hunting. Fishing is another popular activity. There is even a small pond where only children are allowed to fish.

The Catahoula National Wildlife Refuge is a good example of how food and cover can be provided for wildlife, and recreation for people, while agencies cooperate to save taxpayers' money.

Kenneth Graham,
district conservationist, SCS, Jena, La.



Steve Joyner (left) and Ken Graham discuss management practices at the 1,200-acre impoundment, which provides habitat for waterfowl.

A Fish-Raising Experience

by Tony Bennett

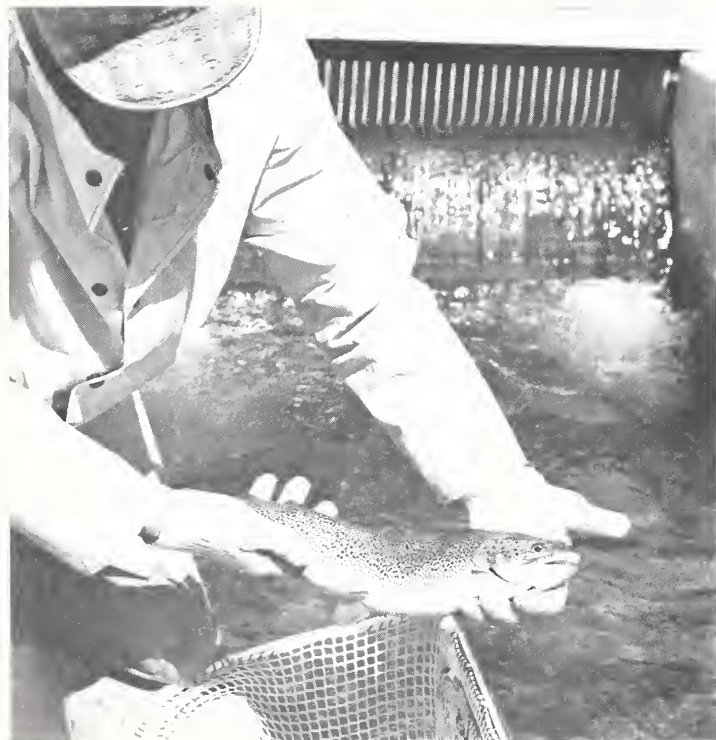


Richard Smith, an auto plant foreman for General Motors in Detroit, Mich., decided that that wasn't how he wanted to spend the rest of his working life. More than anything else, Smith wanted to get into the trout rearing business.

Trout rearing is not a simple enterprise. The fish must have an adequate supply of high quality water with a fairly constant temperature. The water flow must be managed for egg production and disease prevention.

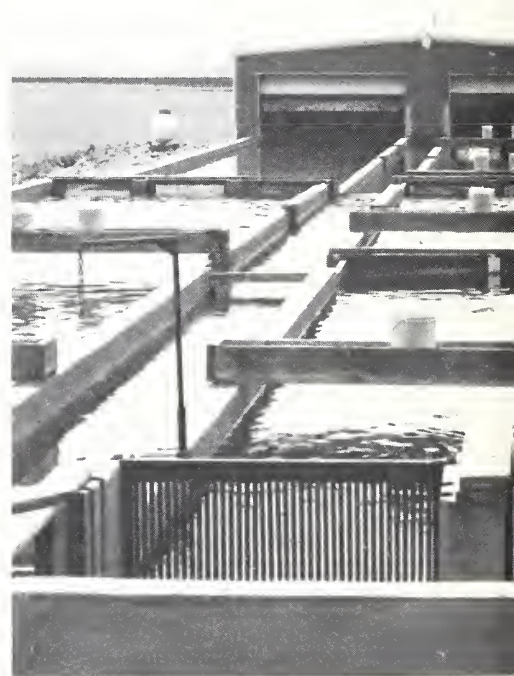
When Smith decided to get into the trout industry, he quit his job, sold his home, took all of his savings, and began looking for the right location for such a business. His search led him to eastern Idaho.

He purchased a farm about 10 miles north of Mackay on Warm Springs Creek. Located on the farm was a spring called Hamilton Springs. Along with the farm came water rights



Above, in the early experimental days of Dick Smith's trout rearing business, he first raised the fish in a bathtub housed in the shed and later expanded to the modified water troughs.

At left, Dick Smith examines a quality sample of his brood stock.



to the spring for 23 cubic feet per second. An evaluation by the Idaho Department of Fish and Game indicated this was enough water to maintain a 15,000 to 20,000 mature fish population (brood stock). The temperature was ideal, ranging between 48 and 50° F.

With the perfect location, Smith still found numerous challenges to meet. He had decided to raise primarily eyed fish eggs (fertilized eggs) for which a market needed to be established. He started by following what he felt was some of the best advice ever given to him with regard to producing fish and fish eggs: "Experiment first before getting in over your head."

The experimental process led him into raising his first fish in a bathtub and then two circular water troughs. In a short time, he expanded to two earthen ponds. The ponds proved

adequate for the expanding fish population in all but two respects: Predators such as ducks, magpies, and small furbearers had easy access to his stock, and he had no facilities for trapping fish and taking eggs.

In order to rectify the shortcomings of his facilities, expand his operation, and explore potential markets, Smith needed further financing. He tried every lending institution available; however, none was willing to gamble on such an operation even though Smith had been willing to risk everything. He decided to try USDA's Farmer's Home Administration (FmHA) one more time. During this second effort, he met Dennis Nelson, the new office manager in Arco, Idaho. Nelson was impressed with the idea and agreed to work with Smith on determining the market potential and economic feasibility of

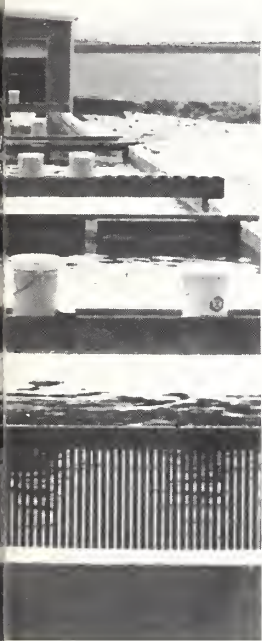
the project.

During the ensuing months, Smith worked with a number of Federal and State agencies, as well as the University of Idaho. Both the University of Idaho and the Idaho Fish and Game Department felt that his proposed operation had excellent potential if properly managed.

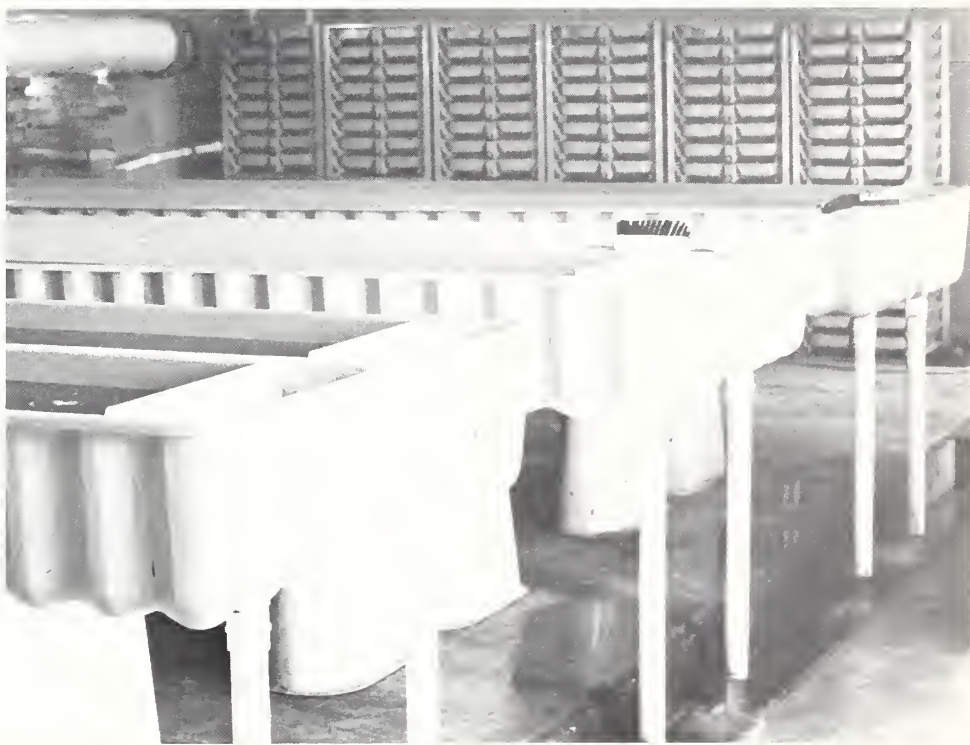
The Soil Conservation Service also worked with Smith. Clyde Scott, biologist, and Billy McMurtrey, engineering technician, helped him to develop adequate facilities that would meet the biological needs of his potential fish populations. Smith also spent a lot of time traveling to other fish operations throughout several States, looking for ideas and knowledge to help him establish the operation for his needs and become a capable manager.

Today with his FmHA loan approved and his operation expanding,

At left, Dick Smith's present raceway facility is adequate for now, but he is making plans for future expansion.



At right, one of his newer facilities is a building for egg hatching and rearing the young. Raceways for fry are in the foreground and egg trays in the background.



the future looks bright for Smith's fishery business. He feels "that more knowledge of the fish production industry is needed by lending institutions and other segments of the business community. More and more farm operators with adequate water situations are looking at the fishery business as an economic option or to supplement their normal farming concerns."

As the world population and the demand for high protein food increase, we may one day be taking our hats off in respect for people like Dick Smith who are willing to take the gamble, risk everything, and rise to the challenge of helping to meet our food production needs.

Tony Bennett,
district conservationist, SCS, Arco, Idaho.

At right, Dick Smith returns a valuable product to the raceway. Water is the key to successful trout farming, and Dick maintains that many conventional farmers in Idaho have adequate supplies and could supplement their normal farming income by raising a much needed protein source.



Below, Smith has installed self-feeding fish feeders. The trout hit the rod and release food into the raceway.



News Briefs

Bergland Calls on Farm Organizations to Expand Energy Conservation Efforts

Secretary of Agriculture Bob Bergland called on agricultural organizations to help expand energy conservation programs to farmers and other rural Americans.

Speaking at a White House ceremony, on July 22, launching the second phase of the President's energy conservation outreach program, Bergland said, "Energy in fuel, fertilizer, and ag chemicals is the largest single production cost facing farmers today. It is almost one-fifth of each farmer's expenses.

"This fact alone has encouraged farmers and other rural Americans to pioneer the development and adoption of energy conservation practices. We want to build on that excellent record of achievement in this effort initiated by President Carter," Bergland said.

Bergland outlined a program to ask farm and rural organizations to make a special effort to encourage farmers to adopt new energy saving ideas that will help reduce their individual energy consumption by 5 percent.

"While this reduction seems small, it is extremely important. It has the potential of reducing farmers' expenses by \$425 million in a single year. Notwithstanding the drought, which is extremely serious, energy conservation must be a priority consideration in agriculture today," the Secretary said.

Bergland told the agricultural leaders that many programs will be used to promote energy conservation and alternative energy sources for farmers. These include the \$525 million in funds to the U.S. Department of Agriculture under the new Energy Secu-

rity Act to finance alternative energy development; the beginning of a new program to permit rural electric cooperatives to finance home, building, and business weatherization measures by their consumers; and the development of an agricultural energy information clearinghouse by the U.S. Department of Agriculture.

"If we take these steps and continue to work closely together, farmers and all other rural Americans will benefit, and we as a Nation will move much closer to becoming energy self sufficient," Bergland said.

Fish and Wildlife Service Adopts Wetlands Classification System

Characteristics and values of wetlands have become better understood in recent years. State and Federal legislation has been passed to protect wetlands, and some statewide wetland inventories have been conducted. In 1974, the U.S. Department of the Interior, Fish and Wildlife Service (F&WS) decided to conduct a new national wetlands inventory (the last one was conducted in 1954). Its purpose would be to provide basic data on the nature and extent of the Nation's wetlands and deepwater habitats, and to facilitate the proper management and use of these areas.

As the first step toward a new national inventory of wetlands, it was decided to develop a new national classification system. This system is now completed and has been officially adopted by the F&WS. The new classification is designed to meet four long-range objectives:

(1) To describe ecological units that have certain homogeneous natural habitats;

(2) To arrange these units in a system that will aid decisions about resource management;

(3) To furnish units for inventory and mapping; and

(4) To provide uniformity in concepts and terminology throughout the United States.

The National Wetlands Inventory is currently underway and is scheduled for completion in December 1981 (see "Where the Wetlands Are," *Soil Conservation*, November 1978).

Copies of the F&WS publication explaining the new classification system, "Classification of Wetlands and Deepwater Habitats of the United States," can be purchased for \$4.25 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock No. 024-101-00524-6.)

New Journal, Soil Survey, To Be Published

A new publication is being established, *Soil Survey*, an international journal for soil survey methods, land evaluation, and their applications to land use planning and land management. Publication will commence in 1981.

Contributions on any aspect of soil survey, land evaluation, or their applications are invited. Details may be obtained from the editors: David Dent and Anthony Young, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, United Kingdom.

SCS Sets Up Aquaculture Team

The Soil Conservation Service has established a National Aquaculture Activity Team, which is headquartered on the campus of Auburn University, Auburn, Ala.

The mission of the team is to promote and expand SCS activities in aquaculture. This includes developing aquaculture policy, improving technical standards for aquaculture, and identifying training needs. There is much interest in aquaculture, especially catfish, trout, and minnow production. The team will be working with SCS offices at the national, State, and technical service center levels.

The team is located at Auburn University because of the high concentration of catfish farming in the South and because of the university's worldwide recognition for its research and teaching facilities in warm-water fish culture. The international center for aquaculture is also located at Auburn, offering services to fishery agencies of foreign countries and to other organizations supporting international aquacultural activities, and will be helpful to the team.

The team is made up of Jesse Bush, civil engineer, formerly of the Alabama SCS State office and leader of the team; Earl Norwood, biologist, from the SCS area office in Granada, Miss.; and Ellis Prather, aquaculture specialist on an inter-agency personnel agreement from Auburn University.

SCS Chief Norman A. Berg says the aquaculture team's work will result in increased SCS technical assistance to aquaculturalists on private and leased land.

It's Back to School for Information Training

Soil Conservation Service and conservation district employees from seven Northeast States went back to school for a week to improve their public information techniques. It is a new way of delivering the SCS training course, "Information Techniques," normally offered at the four SCS training centers.

A 5-day course, geared to train conservationists in news writing, photography, radio and TV broadcasting, and public relations, was held at Clarion State College in Clarion, Pa.

The participants included three conservation district employees, an area conservationist, several district conservationists and soil conservationists, a district clerk, two information specialists, and a visual information specialist. The mixture proved to be excellent for discussions, according to Professor Pat Marini.

The course was intensive. As Clarion's Dean of the School of Communication Dr. James H. Cole had noted when first reviewing the course outline, "It's a crash course covering what Clarion teaches in 4 years of communications training."

The participants were divided into five groups. They found that their day's work didn't end at 4:30 because they were assigned projects to be completed during "off-duty" hours, such as slide/tape presentations, radio talk shows, public service announcements, and news articles.

Monday began with some pointers on using photography with Dr. Henry Fueg of the School of Communication faculty. The participants then began to prepare their own original sound/slide program to be "premiered" at dinner later in the week.

Tuesday and Wednesday proved to be the highlight of the workshop. During those 2 days the nervous participants were allowed to "sound off" on radio and television by participating in a television talk show and radio program targeted at a specific audience. As everyone soon learned, a great deal of preparation is required for such a show. Each group had to select a subject, outline it, and with the help of a producer, put the finished product over the airwaves. The radio and television facilities on campus provided a first-class environment in which to learn. This allowed the faculty and guest lecturers at Clarion to provide each participant with new methods of selling the importance of soil and water conservation.

The remainder of the week was spent boning up on writing skills. As George Frasher, editor of the Clarion News, put it, "Newspapers are the slowest but most accurate of the methods of mass media communication." He stressed important writing skills, targeting the audience, and maintaining general interest.

Effective communication is basic to human interaction. Mass media can be used as an excellent tool in order to reach a larger, more diversified audience. And as the course participants learned, there is a wide range of methods to sell the conservation story.

Gordon S. Smith, head, Information Staff, Northeast Technical Service Center, SCS, Broomall, Pa

The following class participants are contributing authors:

Harold Wingard, soil conservation technician, SCS, Bedford, Pa.

Leslie Hathaway, clerk typist, SCS, Conway, N.H.

Timothy Hann, soil conservationist, SCS,

Gettysburg, Pa.

Michael Shockley, soil conservationist, SCS, Lewisburg, W. Va.

John Sanders, district conservationist, SCS,

Westminster, Md.

SCS Improves Information Processing System

The Soil Conservation Service has begun a major effort to integrate all levels and areas of information processing throughout the agency. When it is appropriate, the new system of information processing will use computers, computer terminals, and other electronic equipment. However, some information will continue to be processed manually. The plan to achieve the new system will be pursued in two simultaneous steps: (1) the installation of computer terminals in State offices, Technical Service Centers, and the National Office to use current SCS computer programs, and (2) the development of a long-range system of integrated information which will use both electronic and manual processing to meet SCS information requirements.

Step one has two goals: (1) to take greater advantage of the current SCS computer programs installed at departmental computer centers, and (2) to provide an excellent training experience with automated data entry at the point of origin of the data. To date, SCS computer programs have served only a small number of States because of problems in moving data for processing. These problems will be overcome through the installation of computer terminals. The terminal being installed has the capability of editing data as they are entered at the point of origin.

Other benefits of the computer terminals are that they will be able to communicate with each other and that their modular design makes it easy to expand their capabilities.

Fifty-four terminals will be delivered during fiscal years 1980 and 1981 to all States, with the exception of Delaware, Rhode Island, and Ne-

braska, which will tie-in to equipment in the Maryland and Connecticut State offices, and the Midwest Technical Service Center, respectively.

The National Office Automatic Data Processing Staff and the terminal manufacturer will provide the training necessary to use the equipment, which includes a processor, magnetic tape and disk units, a printer, data entry keystations, and a control console.

While SCS personnel are fulfilling their short-term needs for information and building their expertise in electronic data processing, the long-range system of integrated information will be under development. The objective of the new system of information is to use the proper method of processing to put the right information in the right place at the right time for the most beneficial cost in terms of staff time and money.

Under step two, the long-range system will be developed through two contracts. The first contract will take about 15 months. During this time, the contractor will determine all requirements for information at every SCS level and how they should be tied together. This involves understanding what information is flowing (including reports from different levels and specific problem solving needs) and which parts of it need to be computerized. A general system design will identify the parts of the long-range system of integrated information to be processed manually and electronically. Specifications will be drawn up to fulfill these requirements.

Under the second contract, the new system will be implemented and phased in over a 3- to 5-year period.

Richard Roberts and **Paul Stidham**, computer specialists, Management Services, SCS, Washington, D.C.

Shoreline Erosion Study Funded

The Virginia State Legislature has approved 2 years of funding for a shoreline erosion research project entitled "The Virginia Shoreline Vegetative Research Project." Provision for a 3-year continuation of the research was contained in the bill. The Virginia Soil and Water Conservation Commission plans to work with the Soil Conservation Service and the Virginia Institute of Marine Science on the 5-year project.

Objectives of the project are: (1) to develop classification criteria for identifying eroding shorelines that can be stabilized with vegetation alone, and (2) to select superior strains of adapted plants and develop propagation and establishment requirements for their use in stabilizing shorelines.

Benefits from the project should be to: (1) provide refined methods for determining whether vegetative or structural methods, or a combination, are needed for stabilization; (2) provide economical methods of stabilizing eroding tidal riverbanks; (3) reduce sediment produced by eroding banks; and (4) reduce the loss of valuable property fronting tidal streams.

Most of the work will be done in tidewater areas of Virginia.

Plant propagation will be carried out by the SCS plant materials center in Cape May, N.J.

Communications Specialists Aid Technical Staff

Professional communications specialists at Soil Conservation Service area offices in California are multiplying the effectiveness of the Service's technical staff many times over.

"For the first time, we are publishing how-to-do-it brochures at the area and field office level that present technical information clearly enough for the public to use it," said Raymond C. Borchard, one of six area conservationists in the State. "Technicians can write a technical draft, but it takes a professional writer to make it a readable, usable piece of work."

Two of the area specialists, including Borchard's, are part-timers with communications training. Others include three district conservationists and a conservation technician, who give up to 30 percent of their time to area information needs. The latter were selected for their interest in writing and photography.

Environmental problems vary so much throughout California that it is frequently difficult to produce bro-

chures at the State Office level that fully meet local needs. Inexpensive localized publications have proved a better answer. Examples are *A Practical Guide for Planting in the Lake Tahoe Basin* and *Homesite Construction Tips*, designed for builders on the western slope of the Sierras.

"I used to think that information meant counting press releases," Borchard said, "but I learned the hard way that it is a discipline like any other. Our professional exhibits, brochures, and articles today are like hiring dozens of additional technicians. Instead of explaining things to people one at a time, we're reaching hundreds with a single communications effort."

Hubert W. Kelley, Jr., director, Information and Public Affairs, SCS, Washington, D.C.

Self-Help Brochures for Lake Tahoe Residents

Homeowners, developers, and builders in the Lake Tahoe Basin of California and Nevada can now solve their own erosion problems. Two self-help brochures—*A Practical Guide for Planting in the Lake Tahoe*

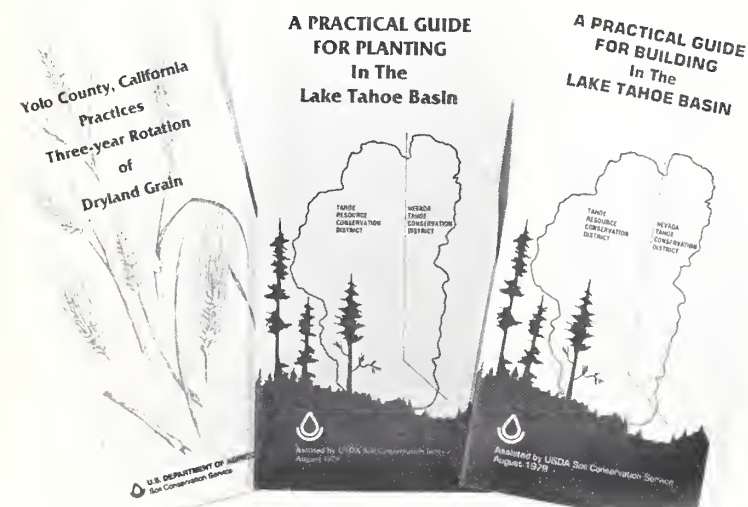
Basin and *A Practical Guide for Building in the Lake Tahoe Basin*—answer such questions as: What solutions are there to erosion problems around my home? How can barren ground be protected while my home is being built? What plants are suited to a short growing season?

The "Planting Guide" explains the difficulties of planting in the Tahoe Basin, with its short growing season, high elevation, and infertile soils. Suitable native grasses, shrubs, and trees, and their characteristics and special requirements are explained in detail. However, homeowners are encouraged to maintain existing natural vegetation to avoid the extra work and difficulties involved in establishing new plants. Also, helpful hints are provided on fertilizing, irrigating, and maintaining vegetation.

Planning and design considerations for home building are discussed in the "Building Guide." Tahoe Basin homebuilders often must stabilize steep slopes. Installation of roads and building pads usually requires grading cuts and fills. The guide suggests wood chips, straw mulch, or crushed stone to protect eroding slopes. Rock-lined ditches, rock walls, and gabions can be used to permanently control runoff and hold the soil in place.

These brochures, prepared by the Soil Conservation Service, the Tahoe Resource Conservation District, and the Nevada-Tahoe Soil Conservation District, offer new erosion and sediment control information. They are part of the districts' continuing effort to provide information to preserve Tahoe Basin's limited resources and maintain Lake Tahoe's water quality.

Mark Parson,
soil conservationist, SCS, South Lake Tahoe, Calif.



Working together, SCS communications specialists and technicians in California are producing brochures to meet local needs.

CONSERVATION Research Roundup

Using Grass Carp for Aquatic Plant Control

In a large south Florida citrus grove, scientists are studying the use of grass carp to control aquatic plants in agricultural irrigation and drainage canals.

The grass carp's ability to control hydrilla and other aquatic plants in small, enclosed lakes is well established. In this project, the fish will be studied in agricultural waterways for the first time.

Researchers from the University of Florida's Institute of Food and Agricultural Sciences (IFAS) are conducting the study supported by funds from USDA's Animal and Plant Health Inspection Service.

Project coordinator Vernon Vandiver of the IFAS Agricultural Research Center at Fort Lauderdale said the objective is to lower the cost of plant control and reduce the need for total dependence on chemical herbicides.

"From an operational standpoint, it's difficult to depend on chemicals for plant control in flowing water," Vandiver explained. "Also, even though the herbicides we have are effective, the plants grow back so quickly that we have to treat again and again. It's just too expensive."

The fish will be stocked at varying rates, from 10 to 500 per acre, to determine which population level provides the best control.

To measure the method's effectiveness, scientists will gather data on plant growth and reinvasion, water quality, and impact on fish and other animal forms. Economic analysis will be used to evaluate the cost effectiveness.

Catfish Farming with Chinese Carp

A 12-month pilot experiment was conducted with channel catfish in polyculture with grass carp, silver carp, bighead carp, and bigmouth buffalo. The fish were raised in three, one-quarter-acre production ponds at the University of Arkansas at Pine Bluff.

Catfish production averaged 659 pounds per acre, with 86 percent survival of fish that averaged 11.2 ounces each at harvest. Feed conversion averaged 1.38, with a feed cost of about 15 cents per pound of catfish produced. At this rate of production, feed expenses in 1980 will be nearly 45 cents per pound of catfish produced.

Bighead carp appeared to outperform silver carp in net production, rate of gain, and average size of harvest. Both silver carp and bighead carp ponds yielded more than the pond with bigmouth buffalo.

Low density polyculture versus high density monoculture was studied to determine possible advantages for small farm operations. One advantage is less danger of total fish loss because of inexperience, while most pond space is utilized and natural food supplies are supplemented by feeding. These are important economic factors to any size operation, but especially for beginning and smaller farmers.

Scott H. Newton,
fisheries projects leader, University of Arkansas,
Pine Bluff, Ark.

Quail Food Plot Program Studied

Beginning in 1972, 28 farms were established as quail demonstration farms in Tennessee. Quail management practices were applied, and quail were counted on all farms every year for 5 years. Quail were also counted on 17 control farms for comparison.

During the investigation, quail habitat declined on Tennessee farms studied. On farms with no quail management practices, quail density was extremely low—.07 to .08 quail per acre. Natural cover and interspersions seemed to be the limiting factors on Tennessee farms.

When cover and interspersions were available, *Lespedeza bicolor* was effective in increasing quail numbers. Bicolor plots sown with seed were more effective than those set with plants. Bicolor plot life expectancy was 6½ years—fescue competition seemed to be the greatest problem in reducing plot life. Under conditions of the study, the cost/benefit ratio of bicolor plots was \$3.82 per extra quail produced. Farmers were interested in increasing wildlife populations on their farms, but not enough to either establish or maintain the habitat requirements necessary for these increases.

James L. Byford,
associate professor and associate head, and

William G. Minser, III,
research associate, Department of Forestry,
Wildlife, and Fisheries, University of Tennessee,
Knoxville, Tenn.

Condensed from an article in the January-February 1980 issue of *Arkansas Farm Research*.

Reprinted from an article in the January, February, March 1980 issue of *Tennessee Farm and Home Science*.

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AGR 101



Meetings

October	5-8	Society of American Foresters, Spokane, Wash.
	6-11	Association of Interpretive Naturalists, Cape Cod, Mass.
	11-14	Farm and Industrial Equipment Institute, Boca Raton, Fla.
	14-16	Agricultural Research Institute, St. Louis, Mo.
	15-17	Central States Forest Soils Conference, Berea, Ky.
	19-23	1980 Congress for Recreation and Parks, Phoenix, Ariz.
	20-23	National Irrigation Symposium, American Society of Agricultural Engineers, Lincoln, Nebr.
	22-24	Hardwood Plywood Manufacturers Association, Scottsdale, Ariz.
	23-26	National Association of Biology Teachers, Boston, Mass.
	25-30	American Planning Association, Cincinnati, Ohio
	27-28	Fundamentals of Ground Water Quality Protection, Pittsburgh, Pa.
	27-31	American Society of Civil Engineers, Hollywood, Fla.
November	9-12	National Agricultural Bankers Conference, Dallas, Tex.
	9-13	The Irrigation Association, Honolulu, Hawaii
	10-17	National Grange, Cedar Rapids, Iowa
	12-14	Future Farmers of America, Kansas City, Mo.
	14-17	American Association of State Highway and Transportation Officials, Las Vegas, Nev.
	16-19	American Society of Farm Managers and Rural Appraisers, Phoenix, Ariz.
	16-19	National Association of State Universities and Land-Grant Colleges, Atlanta, Ga.
	16-19	National Forest Products Association, Rancho Mirage, Calif.
	16-20	American Institute of Chemical Engineers, Chicago, Ill.
	17-20	Geological Society of America, Atlanta, Ga.
December	22-25	American Society of Landscape Architects, Denver, Colo.
	30-December 5	American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Detroit, Mich.
	1-2	American Society of Agricultural Engineers, Chicago, Ill.
	1-4	National Farmers Organization, Cincinnati, Ohio
	2-4	Western Forestry and Conservation Association, Victoria, British Columbia, Canada
	8-12	American Geophysical Union, San Francisco, Calif.

Wildlife Habitats in Managed Forests: The Blue Mountains of Oregon and Washington

by the U.S. Department of
Agriculture, Forest Service

This book is the first major attempt to use an integrated system to examine the impacts of forest management on terrestrial vertebrate fauna. It presents practical guidelines useful in re-

source management, and provides essential information and predictions about how wildlife responds to changes in forest habitats.

The hardback edition is \$14 and is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock No. 001-000-04049-9.)

Recent Soil Surveys Published

by the Soil Conservation Service

Alabama: Mobile County.
Colorado: Summit County Area.
Florida: St. Lucie County and Santa Rosa County.
Idaho: Ada County Area and Boundary County Area.
Illinois: Sangamon County.
Indiana: Lagrange County.
Iowa: Benton County.
Kansas: Ottawa County, Rush County, and Thomas County.

Louisiana: Caddo Parish and Red River Parish.
Mississippi: Jefferson County.
Nebraska: Lancaster County.
New Mexico: Chaves County and Luna County.
North Carolina: Mecklenburg County.
Oklahoma: Marshall County.
South Dakota: Perkins County.
Texas: Bosque County and Pecos County.
Utah: Morgan Area.
Wisconsin: Winnebago County.